



**XXIVth World
Road Congress
Mexico 2011**
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The Norwegian model for financing, building and operating charging infrastructure

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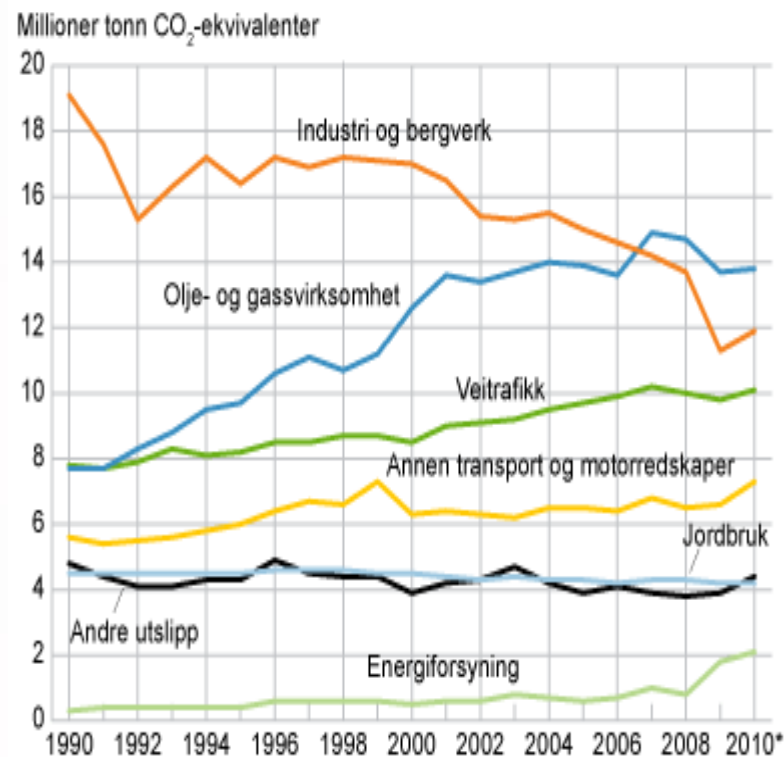
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Road transport accounts for one fourth of all CO₂ emissions in Norway

- From 1990 to 2005 CO₂-emissions from road transport increased with more than 25 percent, and road emissions now account for one fourth of the national emissions.

Utslipp av klimagasser, etter kilde. 1990-2010*. Millioner tonn CO₂-ekvivalenter



Kilde: Utslippsstatistikken til Statistisk sentralbyrå og Klima- og forurensningsdirektoratet.



Norwegian climate policy

- Report to the parliament, White paper on Norwegian climate policy (2007/2008).
 - 20% reduction in greenhouse gas emission 2020
 - carbon neutral in 2030
 - need new tools in transport sector
- Action Plan for electrification of road transport (2009)
 - 200 000 Evs and plug in hybrids in 2020
 - 30 000 charging points

Early 2012: Next White paper on climate policy.



Status EVs and charging infrastructure in Norway

- 4300 EVs (mostly in private ownership)
 - incitaments: free of tax, free parking on public parking lots, access to bus lanes, free of charge on toll roads and ferries
- 3000 charging points all over Norway
- 4.9 mill people in Norway

Worlds highest number of EVs due to population!



About Transnova

- Transnova is a government funded trial project (2009-2011). A decision is expected this autumn as a permanent organisation
- Main goal is to contribute to reduce national CO₂- emissions from the transport sector (land, sea and air)
- To achieve this we support a large variety of projects with participants from research institutes, business, NGOs and local authorities.



Our role

- Transnova was established out of a need to supplement other government policies to reduce GHG emission from transport
- Transnova is contributing towards reducing institutional, economical and technical barriers to stimulate widespread use of clean and renewable fuels and improved technologies and transport solutions.
- Typical effects of project we support can be reduced costs, improved knowledge, new standards, improved economics of scale, more use of alternative fuels, charging infrastructure and learning effects etc



Funding

- 2009 -2011: 50 mill NOK/year ~ approx 10 mill USD
- 2009: Additional 50 mill NOK for charging infrastructure
- 2011: Additional 20 mill NOK as a part of a program to develop improved environmental technologies strengthening Norwegian industry



Charging infrastructure for EVs – first step, 2009/2010

- 50 mill NOK to finance first generation of charging infrastructure
 - No overall plan – « first come, first served »
 - Normal charging (230V/16A)
 - 30 000 NOK/6000 USD each point, funded total investments
 - Businesses, organisations and local authorities could apply for funding.



Results first step:

- 1815 charging points all over the country
- Great focus in media
- Discussions in local authorities
- Show the public that EVs are an alternative
- Motivate the early users
- Private investments to develop equipments and services for EVs
- Increasing use of EVs



Charging infrastructure for EVs – second step, 2011

Fast charging:

- 9 mill NOK ~ 180 000 USD to pilot fast charging stations
- Support approx 45% of the investments, maximum 200 000 NOK/40 000 USD
- CHAdeMO (400V and 63/32 A DC)/Japanies standard), but prepared for other standards
- The providers have to show up a sustainable long term business model
- Professional consortium with energy or net-companies, petrol and service stations, roadside eateries and local authorities



Charging infrastructure for EVs – second step, 2011

Fast charging strategy:

- Establish a first net of fast charging points in clusters around the largest cities and along main corridors
- State fundings together with private investments
- Private building and operating (could be local authorities)
- Long term sustainable business models
- Objectives: Get experience on technical solutions, economical aspects, customers use of infrastructure and charging in cold climate

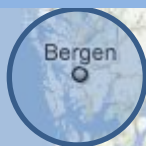


Clusters of fast charging in Norway

Trondheim



Bergen

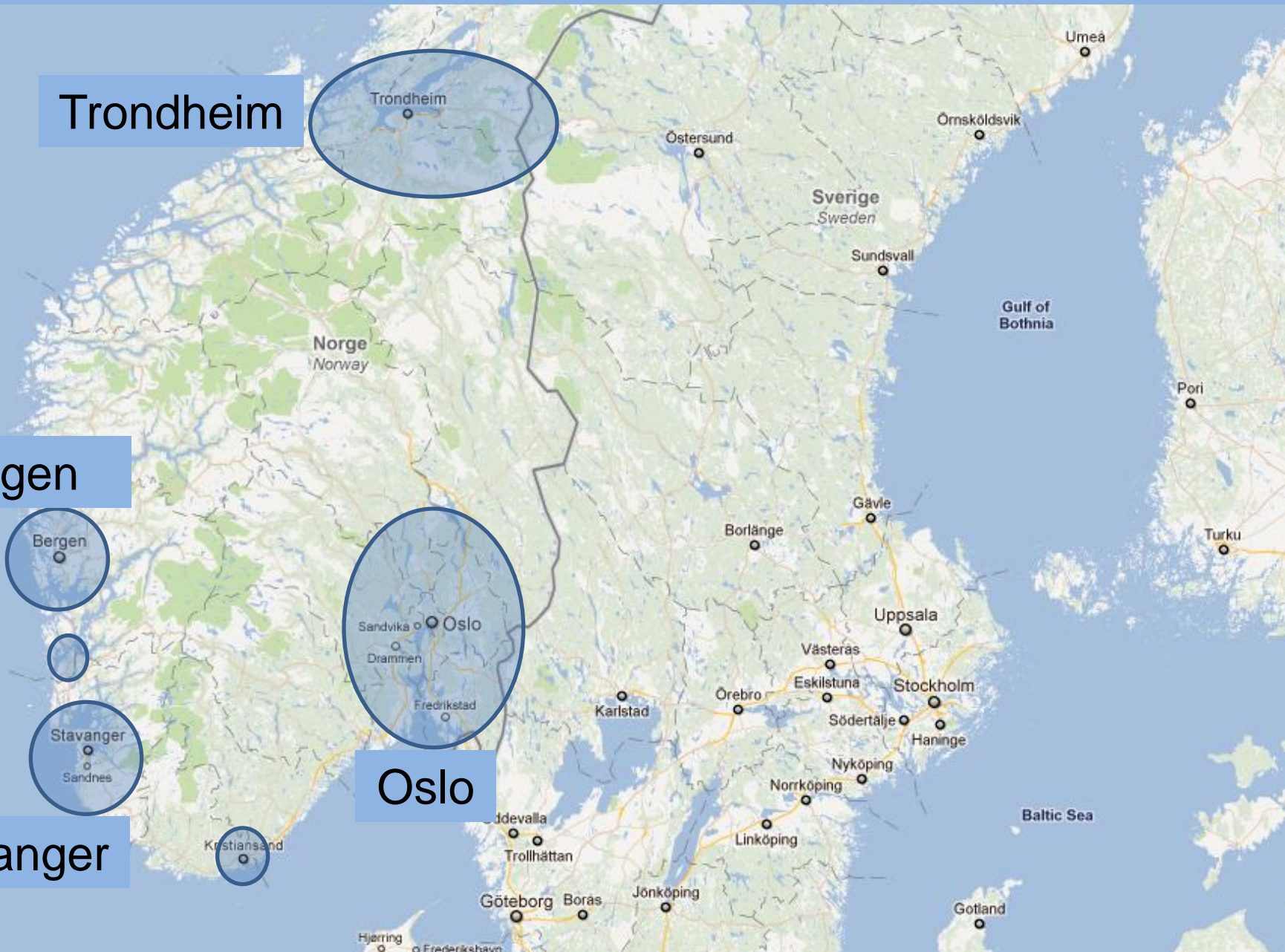


Stavanger



Stavanger

Oslo



Charging infrastructure for EVs – next step, 2012

- National criterias for locating fast charging infrastructure
- Regionals plans for building fast charging
- Models for payment solutions, both economical and technical



Additional service for electromobility – NOBIL.NO

- Transnova has funded a national database: NOBIL
- NOBIL contains information about charging stations in Norway, location, practical and technical information about all points, pictures etc
- NOBIL is free of charge and free to use for commercial purposes, such as services for Internet, smartphones and GPS navigators
- The next step is to make NOBIL interactive with charging stations for information and booking
- Transnova owns NOBIL



Hovedmeny

- [Hjem](#)
- [Informasjon om NOBIL](#)
- [Kontaktinformasjon](#)
- [Søk i NOBIL](#)
- [Tips om ladestasjoner](#)
- [API informasjon](#)
- [Admin Pålogging](#)
- [Information in English](#)

Siste ladestasjoner

- [Stena Line Oslo-Fredrikshavn](#)
- [Nestun Bybaneparkering, Bergen](#)
- [Slik finner du din ladestasjon](#)
- [Filippa-Sol, Trondheim](#)
- [Siste registrerte Ladestasjoner:](#)
-

Tjenester som bruker NOBIL

- [Ladestasjoner.no](#)
- [LadeNå! for iPhone](#)
- [NearBy til mobil](#)
- [Ladestasjoner til GPS](#)

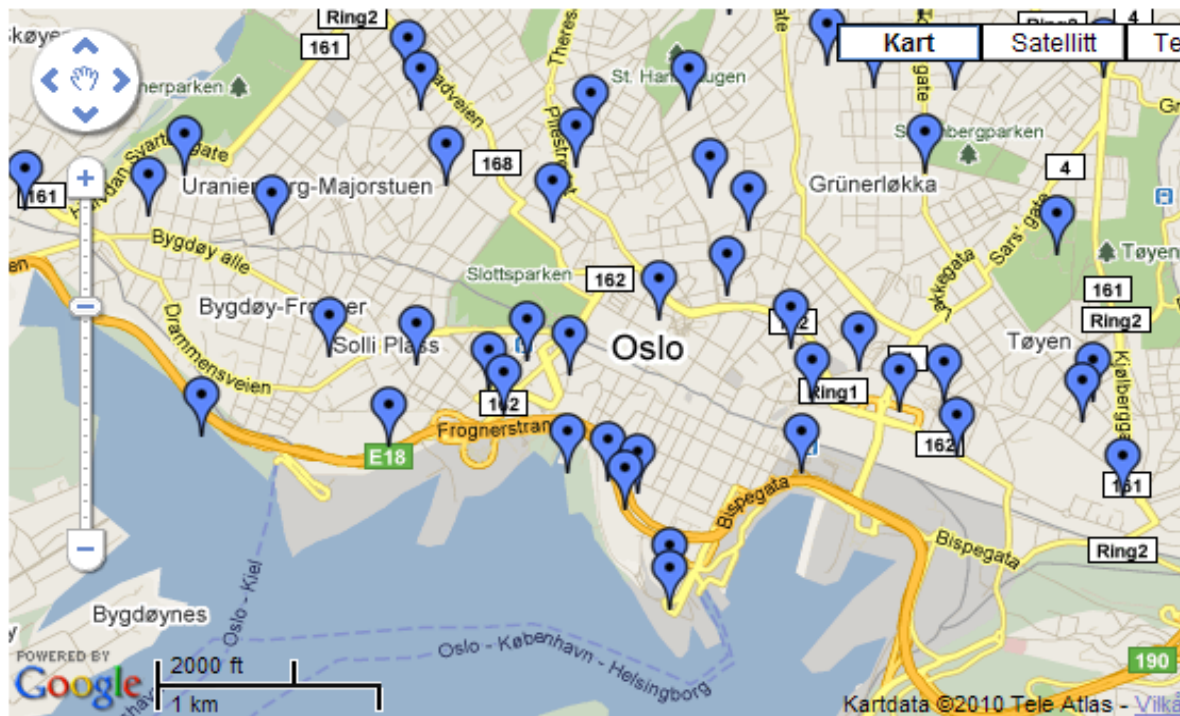
Søk i Nobil

Søk etter by eller sted for å vise tilgjengelige ladestasjoner. Bruk kartets kontroller for å zoome inn eller ut. Mer informasjon kan du få ved å klikke på den blå markøren.

Ved å hake av i de små boksene velger du hva du utvalget du vil se. Filteret "Offentlig" viser ladestasjoner som er tilgjengelig for alle. Ved å fjerne haken vil kartet også vise stasjoner som er reservert for beboere, ansatte og etter avtale.

Søk etter sted / by Viser Oslo Vis: Avgiftsfrie Hurtiglading Offentlig

Norge



Kart Satellitt Te

Oslo

2000 ft
1 km

Kartdata ©2010 Tele Atlas - Vilkå

Some challenges, charging infrastructure:

- No common international technical standards for fast charging
 - CHAdeMO , Japan
 - Mennekes Plug, Germany
 - Others?
- Other technical solutions for charging
- New batterie technologies
- Electrifications of transport – is this a sustainable solution for the future?



Summery and conclusions

- We think electrification is a part of the solution
- Norway has started building infrastructure step by step
 - flexible and a way to learn
- Believe in a model with public- private partenership
 - state fundings and private building and operating
- Electrification of transport still needs economical incitaments and support
- **Electrifications of transport needs international cooperations to find the good common solutions!**



Thank you!

www.transnova.no

- for sustainable mobility

